

REMARKS

Applicants acknowledge receipt of a Final Office Action dated January 19, 2006. In this response, Applicants have amended claims 13, 42 and 44. Following entry of these amendments, claims 13-16 and 18-44 remain pending in this application.

Reconsideration of the present application is respectfully requested in view of the foregoing amendments and the remarks which follow.

Rejections Under 35 U.S.C. § 103

On page 2 of the Office Action, the PTO has rejected claims 13, 18-30, and 35-44 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent 5,928,737 to Hammer *et al.* (hereafter “Hammer ‘737”) in view of WO 92/19680 to Bastioli *et al.* (hereafter “Bastioli”).

In addition, on page 4 of the Office Action, the PTO has rejected claims 14-16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hammer in view of Bastioli and in view of U.S. Patent 6,406,530 to Bengs *et al.* (hereafter “Bengs”).

Finally, on page 4 of the Office Action, the PTO has rejected claims 31-34 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hammer in view of Bastioli and in view of U.S. Patent 5,346,936 to Buehler *et al.* (hereafter “Buehler”).

Applicants respectfully traverse each these rejections for the reasons set forth below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants’ disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Here, Hammer '737, Bastioli, Bengs and Buehler, whether taken individually or in combination, fail to teach or suggest a seamless, tubular food casing comprising "b) at least one other polymer selected from the group consisting of a homo- or copolymer comprising hydroxycarboxylic acid units, a polyetherurethane, a polyesteretherurethane and a polyalkylene carbonate of the formula $-\text{CHR}^1-\text{CHR}^2-\text{O}-\text{CO}-\text{O}-$]_n, where R¹ and R² independently of one another are a hydrogen atom or a (C₁-C₄) alkyl radical and n is an integer from 10 to 5000, wherein a weight ratio of a:b is in a range from 90:10 to 10:90" as recited in independent claims 13, 42 and 44.

While Hammer '737 discloses a sausage casing comprising thermoplastic starch and, optionally, synthetic polymers, preferably soft and ductile polyamides, polyesters, polyolefins, ethylen/ethylacrylate/maleic anhydride copolymers or polyvinylpyrrolidone (col. 3, lines 48 - 52). Hammer does not disclose or contemplate any of the specific synthetic polymers set forth in present independent claims 13, 42 and 44. These specific synthetic polymers render the casing resistant to boiling water, since they form a matrix which protects the starch from being dissolved by steam or hot water. This benefit is discussed in the present specification, e.g. in the paragraph bridging pages 2 and 3. There Applicants have noted that casings which consist only of thermoplastic starch or thermoplastic starch derivatives do not have the desired level of stability towards hot or boiling water. When the starch and/or starch derivative is admixed with the specific polymers recited in present independent claims 13, 42 and 44, in particular with the polyetherurethanes, polyesteretherurethanes or polyalkylene carbonates, this benefit is achieved. See, for example, Example 2 in the present specification, where it is disclosed that the casing was resistant to simmering. Further, in present Example 3 it is mentioned that the casing was suitable for scalded-emulsion sausage (which is treated with steam or hot water).

With the casing disclosed in Hammer '737 the benefit of providing a hot-water resistant casing was not achieved, not even with the embodiment in which the casing contains the additional polymers as recited in col. 3, lines 48-55. The polyesters, polyolefins, polyamides, ethylene/ethylacrylate/maleic anhydride copolymers or PVP-copolymers do not form the above-mentioned matrix which imparts resistance to steam and hot or boiling water.

In the casing as disclosed by Hammer comprising the additional polymers the starch is leached out by hot or boiling water and the casing finally disintegrates.

Bastioli relates to a thermoplastically processable, biodegradable polymeric composition comprising a starch-based component and a polymeric component which may comprise a polymer of hydroxyacids. The polymers of hydroxyacids may be homopolymers of aliphatic hydroxyacids, such as polylactides. Disclosed are also “copolymers of aliphatic hydroxyacids with aliphatic or aromatic isocyanates” and “polyesters upgraded with chain extenders such as isocyanates” (p. 3, bottom line, to p. 4, line 1). Bastioli is completely silent about polyetherurethanes, polyesteretherurethanes and polyalkylenecarbonates as recited in present independent claims 13, 42 and 44. Food casings produced from a composition comprising any of these polymers hence cannot be rendered obvious by a combination of Hammer and Bastioli.

Bengs relates to thermoplastic compositions based on biopolymers, preferably on starch (col. 1, lines 13 - 15). The mixtures are processed into films and other shaped articles, such as casings (col. 4, line 28). Instead of using natural starch, chemically modified starches, including starch esters, such as starch acetate, may be employed in the mixture (col. 5, lines 58- 63). Bengs does not provide any motivation to modify a composition based on starch or a starch derivative in order to obtain a hot-water resistant casing. Also, Bengs is completely silent about polyetherurethanes, polyesteretherurethanes and polyalkylenecarbonates as recited in present independent claims 13, 42 and 44.

Buehler is cited in the Office Action as allegedly teaching “that it is old and well-known in the art to have fillers present up to 12 % by weight based on the total weight of the mixture” and that it would have been obvious to have provided the thermoplastic mixture of Hammer ‘737 with the fillers. Applicants respectfully disagree.

Buehler employs a thermoplastic mixture comprising a chemically modified starch, in particular starch acetate, plasticizers and/or destructureizing agents for the chemically modified starch, and a linear polymer (col 2, lines 28 - 38). The linear polymer has a softening point of 50 to 160 °C (col. 3, lines 27-298). It is preferably a polymide or a polyester. Polyetherurethanes, polyesteretherurethanes or polyalkylene carbonates as set forth in present amended claim 13 are not disclosed.

Additives, such as fillers may be added to the starch/polymer mixture of Buehler (col. 4, lines 15- 19). But, even if these fillers were employed in the thermoplastic mixture of Hammer, this could not render obvious the food casing as claimed in independent claims 13, 42 and 44.

Accordingly, Applicants submit that none of the secondary references add anything to resolve the fundamental deficiencies in the Hammer '737. For this reason, Applicants submit that the rejections of independent claims 13, 42 and 44, as well as of any claims depending therefrom ought to be withdrawn.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections under §103.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that all of the pending claims are now in condition for allowance. An early notice to this effect is earnestly solicited. If there are any questions regarding the application, the Examiner is invited to contact the undersigned at the number below.

Respectfully submitted,

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The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.